

J. Davy

A
MODERN SYSTEM
OF
NATURAL HISTORY.

CONTAINING
Accurate Descriptions, and faithful Histories,
OF
ANIMALS, VEGETABLES, and MINERALS.

Together with
Their Properties, and various Uses in MEDICINE,
MECHANICS, MANUFACTURES, &c.

Illustrated

With a great Variety of COPPER-PLATES, accurately
drawn from Nature, and beautifully engraved.

By the Rev. SAMUEL WARD,
Vicar of Cotterstock, cum Glapthorne, Northamp-
tonshire; and others.

V O L. IV.

*The great Creator did not bestow so much Curiosity and
Workmanship upon his Creatures to be looked upon with a
careless incurious Eye.*

Derham's Phys. Theol. Book xi.

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THE NORWAY RAT.

THERE is no possibility of our deriving any advantage from the destruction of the common rat, since they are replaced by such mischievous successors; the Norway rat having the same disposition with the common kind, with greater abilities of doing mischief. This animal never made its appearance in England till about forty years ago. It burrows in the banks of rivers, ponds, and ditches; takes the water very readily, and swims and dives with great celerity. It does incredible damage to those mounds which are raised to prevent ponds and rivers from over-flowing. It forms its holes very near the edge of the water,

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where it chiefly resides during the summer, and feeds upon small animals, fish, and corn. When the winter approaches, it comes nearer the farm-houses, and burrows in their corn, where it consumes much, but destroys more. Nothing, in short, that can be eaten, escapes the voracity of this creature. It destroys rabbits, poultry, and all kinds of game; and hardly any of the feeblers animals can escape its rapacity, except the mouse, which shelters itself in its little hole, that cannot receive an animal so large as the Norway rat,

Mr. Buffon, and after him Dr. Goldsmith, says these animals frequently bring forth from fifteen to thirty at a time *. Mr. Pennant says they produce from fourteen to eighteen young at a time †. The bite of these animals is not only severe but dangerous; the wound being immediately attended with a great swelling, and requires a considerable time to heal. These creatures are sometimes so daring as to turn upon their pursuers, and endeavour to

* Buffon, vol. XVII. p. 2. Goldsmith, vol. IV. p. 68.

† British Zoology, vol. I. p. 100.

fasten on the stick or hand of the person who attempts to strike them.

The head, back, and sides of this animal are of a light brown colour, mixed with tawny and ash-colour; the breast and belly of a dirty white; the feet naked, and of a dirty flesh colour; the fore-feet are furnished with four toes, and a claw instead of the fifth. Its length, from the nose to the tail, is about nine inches, and the tail the same. It is principally in colour that this animal differs from the black rat, or what was once called the common rat, which is now no longer common. This new invader is much stronger; and, since its arrival, has found means to destroy almost the whole species, and to possess itself of their retreats.

Not only the black rat, but all other animals of inferior strength, were obliged to submit to the rapacity of the Norway rat. The frog was utterly incapable of combat or defence. It had been purposely introduced into Ireland some years before the Norway rat, and began to multiply exceedingly. The inhabitants were pleased with the introduction of an harmless animal, that served to rid their fields of insects,

and, as they imagined, contributed to render their waters more wholesome. But the Norway rat soon put a period to their propagation; for, being of an amphibious nature, it pursued the frog to its lakes, and seized it in its own natural element. The frog is therefore once more become almost extinct in that kingdom; and the Norway rat, having fewer animals to destroy, and consequently a smaller portion of provision, is also grown less numerous.

The great encrease of these animals would over-run the whole country in a short time, did they not destroy each other. The large male rat usually keeps in a hole by itself, and is dreaded by its own species as the most formidable of enemies. Thus are these pernicious creatures kept within due bounds; and, that their encrease may not too much incommode mankind, it is repressed by their own rapacity.

All the stronger carnivorous animals have natural antipathies against the rat. The dog, though he detests their flesh, pursues them with alacrity, and attacks them with great animosity. Such as are accustomed to killing these vermin, dispatch them with a single squeeze;
but

but those which shew any hesitation are sure to be sufferers; the rat always taking the advantage of a moment's delay, and, instead of waiting for the attack, becomes the aggressor, and seizes its enemy by the lip, often inflicting a very dangerous wound.

Another enemy of these animals is the cat; and yet many of them are unwilling to attack the rat, or to feed upon it when killed. Some of them indeed will pursue and seize the rat, though they often meet with an obstinate resistance. If very hungry, the cat will sometimes eat the head, but it is generally satisfied with its victory alone. The weasel is a much more dangerous foe to these vermin; but man has contrived a variety of methods of destroying these noxious intruders.

The rat being so pernicious a creature, we shall add the two following receipts, as they are said to be effectual for destroying those disagreeable vermin.

The first has the sanction of the Dublin society, who, on the 19th of November, 1762, ordered a premium of five guines to one Laurence O'Hara, for this discovery, which is, "One quart of oatmeal, four drops of rhodium,

dium, one grain of musk, and two nuts of *nux vomica*, finely rasped." This mixture is to be made up in pellets, and laid in the holes and places which the rats frequent.

The other receipt is thus: "Take of the seeds of flaves-acre, or lousewort, powdered, one fourth part, and of oatmeal three parts; mix them well, and make them up into a paste with honey. Lay pieces of it in the holes, and on the places frequented by rats or mice, and it will kill such of those vermin as eat of it*."

The first step taken by rat-catchers, in order to clear a house, &c. of those vermin, is to allure them all together to one proper place, before they attempt to destroy them; for there is such an instinctive caution in these animals, accompanied with a surprising sagacity in discovering any cause of danger, that if any of them are hurt, or pursued in an unusual manner, the rest take the alarm, and become so shy and wary, that they elude all the devices and stratagems of their pursuers for some time after. This place, where

* *Gent. Mag.* March, 1763.

the rats are to be assembled, should be some closet, or small room, into which all the openings but one or two may be secured; and this place should be, as near as possible, in the middle of the house, or buildings. It is the practice, therefore, to attempt to bring them all together in some such place, before any attempt be made to take them; and, even then, to avoid any violence, hurt, or fright to them, before the whole are in the power of the operator. The means used to allure them to one place are various: one of those most easily and efficaciously practised is, the trailing some piece of their most favourite food, which should be of the kind that has the strongest scent, such as toasted cheese, or broiled red-herring, from the holes or entrances to their access in every part of the house or contiguous buildings, whence it is intended to allure them. At the extremities, and in different parts of the course of this trailed track, small quantities of meat, or any other kind of their food, should be laid, to bring the greater number into their tracks, and to encourage them to pursue it to the center place, where they
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are intended to be taken. At that place, where time admits of it, a more plentiful repast is laid for them, and the trailing repeated for two or three nights.

Besides this trailing and way-baiting, some of the most expert of the rat-catchers have a shorter, and perhaps more effectual method of bringing them together; which is, the calling them, by making such a kind of whistling noise as resembles their own call; and by this means, with the assistance of the way-baits, they call them out of their holes, and lead them to the repast prepared for them at the place designed for taking them. But this is much more difficult to be practised than the art of trailing; for the learning the exact notes, or cries of any kind of beasts or birds, so as to deceive them, is a peculiar talent, not easily attained to in other cases,

In the practising either of these methods, of trailing or calling, great caution must be used by the operator, to suppress and prevent the scent of his feet and body from being perceived; which is done by overpowering that scent by others of a stronger nature. In
order

order to this, the feet are covered with cloths rubbed over with *assa foetida*, or other strong-smelling substances; and even oil of rhodium is sometimes used for this purpose, but sparingly, on account of its dearness, though it has a very alluring, as well as disguising effect. If this caution of avoiding the scent of the operator's feet, near the track, and in the place where the rats are proposed to be collected, be not properly observed, it will very much obstruct the success of the attempt to take them; for they are very shy of coming where the scent of human feet lies very fresh, as it intimates, to their sagacious instinct, the presence of human creatures, whom they naturally dread. To the above mentioned means of alluring by trailing, way-baiting, and calling, is added another of very material efficacy, which is the use of the oil of rhodium, which, like the *marum lyriacum* in the case of cats, has a very extraordinary fascinating power on these animals. This oil is extremely dear, and therefore sparingly used. It is exhaled in a small quantity in the place, and at the entrance of it, where the rats are intended to be taken, particularly

ticularly at the time when they are to be last brought together, in order to their destruction : and it is used also by smearing it on the surface of some of the implements used in taking them by the method below described : and the effect it has in taking off their caution and dread, by the delight they appear to have in it, is very extraordinary.

It is usual, likewise, for the operator to disguise his figure as well as scent ; which is done by putting on a sort of gown or cloak, of one colour, that hides the natural form, and makes him appear like a post, or such inanimate thing ; which habit must likewise be scented as above, to overpower the smell of his person : and besides this, he is to avoid all motion, till he has secured his point of having all the rats in his power.

When the rats are thus enticed and collected, where time is afforded, and the whole in any house and out-buildings are intended to be cleared away, they are suffered to regale on what they like best, which is ready prepared for them, and then to go away quietly for two or three nights ; by which means

those

those which are not allured the first night, are brought afterwards, either by their fellows, or the effects of the trailing, &c. and will not fail to come duly again, if they are not disturbed or molested. But many of the rat-catchers make shorter work, and content themselves with what can be brought together in one night or two; but this is never effectual, except where the building is small and entire, and the rats but few in number.

The means of taking them, when they are brought together, are various. Some entice them into a very large bag, the mouth of which is sufficiently capacious to cover nearly the whole floor of the place where they are collected; which is done by smearing some vessel, placed in the middle of the bag, with oil of rhodium, and laying in the bag baits of food. This bag, which before lay flat on the ground with the mouth spread open, is to be suddenly closed when the rats are all in it. Others drive, or fright them, by slight noises or motions, into a bag of a long form, the mouth of which, after all the rats are come in, is drawn up to the opening of the place by which

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they

they entered, all other ways of retreat being secured. Others again, intoxicate or poison them, by mixing with the repast prepared for them, the coculus Indicus, or the nux vomica. A receipt for this purpose has appeared, which directed four ounces of the oculus Indicus with twelve ounces of oatmeal, and two ounces of treacle or honey, made up into a moist paste with strong beer; but if the nux vomica be used, a much less proportion will serve than is here given of the coculus. Any similar composition of these drugs, with that kind of food the rats are most fond of, and which has a strong flavour, to hide that of the drugs, will equally answer the end. If, indeed, the coculus Indicus be well powdered, and infused in the strong beer for some time, at least half the quantity here directed will serve as well as the quantity before-mentioned. When the rats appear to be thoroughly intoxicated with the coculus, or sick with the nux vomica, they may be taken with the hand, and put into a bag or cage, the door of the place being first drawn to, lest those which have strength and sense remaining should escape.

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By these methods, well conducted, a very considerable part of the rats in any farm, or other house, and the contiguous buildings, may be taken*.

THE WATER-RAT.

THIS animal is about the same size with the latter, but has a larger head, a blunter nose, and smaller eyes. Its ears are very short, and almost hid in the fur, and the tip of its tail is whitish. The head and back are covered with long black hair, and that on the belly is of an iron grey. The length of this animal, from the nose to the tail, is seven inches, and the tail is about five. This creature somewhat resembles the beaver, which induced Linnæus, in the first edition of his *Fauna Suecica*, to style it *Caster cauda lineari tereti*. It is very expert at swimming and diving; and was supposed by Ray and Linnæus to be web-footed; but this has been found to be a mistake, its toes pretty much resembling those of its kind. It inhabits Europe and North-America; but never frequents houses, being usu-

* Museum Rusticam, vol. I. p. 395.

ally found on the banks of rivers, ditches, and ponds, where it burrows and breeds, and generally brings forth about six young at a time. It feeds on frogs, small fish, roots, and insects, and is itself the prey of the pike. On *maigre* days, this animal and the otter are eaten in France.

THE COMMON MOUSE.

THIS timid, cautious, active, little animal is entirely domestic, being never to be found in fields, or, as Mr. Buffon observes, in any countries uninhabited by mankind. Fearful by nature, but familiar from necessity, it attends upon mankind. Indeed all its motions appear to be regulated by fear and necessity: to seek provision is its only inducement to leave its hole, and it seldom ventures farther than a few paces from its home. It does not, like the rat, travel from one house to another, except it be compelled; and, as it requires less nourishment, it does less mischief.

Bold and courageous animals are more easily tamed than those which are cowardly and timid; the fearful being
ever

ever suspicious. The mouse is the most feeble, and consequently the most timid of all quadrupeds, except the Guinea-pig; it cannot therefore be rendered thoroughly familiar. When fed in a cage, it retains its natural apprehensions; and to these it owes its security. No animal has more enemies than the mouse, and few are so incapable of resistance. The cat, the snake, the hawk, the owl, the weasel, and the rat, destroy this race by millions, and were it not for their amazing fecundity, they must long have been extirpated. The mouse breeds at all seasons, and several times in the year, and usually produces six or seven young at a time, which in less than a fortnight are able to run abroad and shift for themselves. Aristotle gives us an idea of the astonishing fecundity of this animal, by assuring us, that having put a pregnant mouse into a vessel of corn, he some time after found an hundred and twenty mice all sprung from one original. The early perfection of this animal implies the short duration of its life, which seldom exceeds two or three years.

This animal is too well known to require any further description. It inhabits

habits all parts of the world, except the arctic. This species is often found of a pure white, in which state it makes a most beautiful appearance, the full bright eye appearing to great advantage amidst the snowy colour of the fur. The root of white hellebore and staves acre, powdered and mixed with meal, will infallibly poison them.

THE LONG-TAILED FIELD MOUSE.

THE length of this animal, from the nose to the tail, is about four inches and an half, and the tail four inches; the eyes are black, large, and full; the ears prominent; the head, back, and sides, of a yellowish brown, mixed with some dusky hairs: the breast is of an ochre colour, and the belly white: the tail is slightly covered with short hair. These animals are found only in fields and gardens, where they feed on ants, acorns, and corn; and in some parts of England they are called bean-mice, from the havock they make among the beans when first sown. They form great magazines in their burrows for winter provisions; but it generally happens

happens that they provide for other animals. The hog in particular, comes in for a share, and the damage sustained by the farmer in the fields, by their rooting up the ground, is principally occasioned by their search after the hoards of the field mice. The nest that they provide for their young, is generally very near the surface, and frequently in a thick tuft of grass. They usually produce from seven to ten at a time.

THE SHORT-TAILED FIELD MOUSE.

THIS animal, as its name implies, has a much shorter tail than the former, not exceeding an inch and an half, and ending in a small tuft. The length of this species, from the nose to the tail, is about six inches. Its colour is inclining to that of the domestic mouse; the upper part being blackish, and the belly of a deep ash-colour. This animal makes its nest in moist meadows produces from six to eight at a time, and has a strong affection for its young. In its manner this creature resembles the last species: like that it resides under ground, and lives on nuts, acorns

acorns, and corn; and, like that, it forms a magazine of provision against winter. But, in the place of its abode, it differs from the former; being seldom known to infest gardens.

THE HARVEST MOUSE.

THE eyes of this animal are less prominent than those of the former, the upper part of the body is of an iron colour, the lower part white, a straight line along the sides dividing the colours; the tail is a little hairy. The length of the body from the nose to the tail, is two inches and an half, and the length of the tail about two inches. These animals are found in great plenty in Hampshire during the time of Harvest; but they never enter houses. Many of them are carried into the ricks of corn in the sheaves, and on breaking up the ricks, some hundreds of them are sometimes killed. In winter they shelter themselves under ground, where they burrow very deep, and form a comfortable bed of dead grass. The nests for their young are made above ground, between the straws of standing corn. They

They bring forth about eight young at a time.

THE ORIENTAL MOUSE.

THIS animal is chiefly of a grey colour, and the back and sides are elegantly marked with twelve rows of small pearl-coloured spots, extending from the head to the rump. The size of this animal is about half that of the common mouse, and the tail about the length of the body. It inhabits India, where there is another small species which smells of musk, called cherofo, by the Portuguese who live there.

THE GREGARIOUS MOUSE.

IT has a blunt nose, a small mouth, and naked ears appearing above the fur. The hair on the upper part of the body is black; the throat, belly, and feet, whitish: the tail, which is about a third part of the length of the body, is thinly covered with white hair; the end black and ash-colour. This animal is somewhat larger than the common mouse. It is found in Germany and Sweden;

Sweden; it eats sitting up, like a squirrel; burrows, and lives under ground.

THE SHREW MOUSE.

THE shrew mouse is about the size of the domestic mouse, but differing greatly from it in the form of its nose, which is very long and slender. The teeth are twenty-eight in number, and of so singular a form, as to engage the attention of most naturalists. Gesner supposes that nature, in this animal, seems to have formed teeth of a mixed shape, between those of mice and serpents. The two upper fore-teeth are extremely sharp, with a kind of wing or beard on each side of them, resembling that of an arrow, which is scarce visible but on a close inspection. The other teeth are very small and placed so close together as hardly to appear separated. The length of this little animal, from the nose to the tail, is about two inches and an half; and the length of the tail about one inch and an half: the ears are short and rounded; the eyes are extremely small, and, like those of the mole, almost concealed in the hair. The colour of the head and back is of a brownish

brownish dusky red, and the belly of a dirty white: the tail is covered with short dusky hair; the legs are very short, and the feet are divided into five distinct toes.

The shrew mouse inhabits Europe, lives in old walls, holes in the earth, or among heaps of stones; it is frequently found in or near out buildings, hayricks, and dung-hills: it lives on corn, insects, and filth of any kind. Either from its food or its nature, it has a strong disagreeable smell; so that the cat, when it is killed, will refuse to eat it. It is said to produce four or five young at a time. It is a very harmless little creature, doing scarce any injury, as it feeds more upon insects than corn, and may be considered rather as a friend than an enemy to mankind.

THE WATER SHREW MOUSE.

IT has a long slender nose, minute ears, and very small eyes almost hid in the fur: the colour of the head and the upper part of the body is black; the throat, breast, and belly, of a light ash-colour. It has a triangular dusky spot beneath the tail. This animal is much larger

larger than the former, the body being three inches and three quarters long, and the tail two inches. It burrows in the banks near the water. Though formerly well known in England, it was lost till May 1768, when it was discovered in the fens near Revesly Abbey, in Lincolnshire. It is called the blind mouse by the farmers, and is at present rarely to be met with.

THE MINUTE SHREW MOUSE.

LINNÆUS says this animal is the least of all quadrupeds. * It has small eyes, a very slender nose, broad, short naked ears, and whiskers reaching to the eyes. Its hair, which is very fine and glossy, is grey above, and white beneath. Its head is almost as large as its body, and it has no tail. It inhabits Siberia, lives in some moist place beneath the roots of trees, and feeds principally on seeds. It burrows, runs swiftly, and has a voice resembling that of a bat.

* Lin. syst. 73.

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There is another species, called the murine shrew mouse, which inhabits Java, and has a long nose, round naked ears, and long hairs about the whiskers. It is nearly of the size of a common mouse, and its body is of an ash-colour.

The Brasilian shrew mouse has a sharp nose and teeth: the body is of a dusky colour, marked along the back with three broad black strokes. Its body is about five inches long, and its tail two. It inhabits Brasil, and is not afraid of the cat, nor does the cat hunt after this animal, or consider it as its prey.

The Mexican shrew mouse, which Mr. Buffon calls le tucan, has a sharp nose, small round ears, two long fore-teeth above and below, and is without sight. Its body is thick, fat, and fleshy, and its legs so short that its belly almost touches the ground. It has long crooked claws, tawny hair, and a short tail: The length of its body is about nine inches. It inhabits Mexico, where it burrows and makes such a number of hole, that travellers cannot tread with safety. If it gets out of its hole, it does not know its way back again, but
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immediately digs another. It grows very fat, and is good for food. It feeds on roots and seeds.

THE MOLE.

THE mole is formed to live wholly under the earth, as if nature meant that no place should be left entirely untenanted. From our own sensations, we should naturally imagine, that the life of a quadruped, condemned to hunt under ground for its prey, and whenever it removed from one place to another, obliged to force its way through a resisting body, must be the most frightful and solitary in nature; but, notwithstanding all these seeming inconveniencies, we discover no signs of distress or wretchedness in this animal. No quadruped appears fatter, none has a more sleek or glossy skin. Though it is indeed denied many advantages that most other animals enjoy, it is more abundantly possessed of others, which they possess in an inferior degree.

The divine wisdom is more agreeably illustrated in many animals; but the uniformity of its attention to every

article of the creation, even the most insignificant, by adapting the parts to its destined course of life, appears more evident in the mole than in any other animal.

The mole is of a size between the rat and the mouse, but does not resemble either, being an animal of a very singular kind, and very different from any other quadruped. It is cloathed with fine short glossy black hair. Its nose is long and pointed like that of a hog, but much longer in proportion. Instead of external ears, it has only holes, and its eyes are so very small that it is extremely difficult to discover them. The antients and some of the moderns were of opinion that this animal was totally blind; but Dr. Derham discovered, with a microscope, all the parts of the eye that are known in other animals; such as the pupil, the vitreous and the chrystalline humours. The smallness of the eyes is a peculiar happiness to this animal; a small degree of vision being sufficient for a creature that is ever destined to a subterraneous abode. Had these organs been larger, they would have been continually liable to injuries, by the

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earth

earth falling into them : nature has therefore made them very small, and, as a farther defence from that inconvenience, has covered them with fur. Anatomists mention another wonderful contrivance that contributes to their security, assuring us that they are furnished with a certain muscle, by which they can draw back or exert the eye, whenever it is necessary or in danger.

To compensate for the dimness of its sight, the mole enjoys two other senses in the highest perfection ; those of hearing and smelling : the first gives it the most early notice of the approach of danger ; the other, in the midst of darkness, directs it to find its food. The nose also, being long and slender, is well adapted for thrusting into small holes, in search of worms and other insects that inhabit them. The wants of a subterraneous animal can be but few, and these are sufficient to supply them. The mole has no appetites but what it can easily indulge, no enemies but what it can easily evade or conquer. When it has buried itself in the earth, it seldom stirs out unless compelled by violent rains, or when in pursuit of its prey, it comes too near the surface, and gets into the

open

open air, which may be considered as its unnatural element. It usually chooses the softer grounds, as it can travel through them with less labour, and as the greatest number of worms and insects, on which it preys, are to be found there.

The breadth, strength, and shortness, of the fore-feet, which are inclined sideways in this animal, answer the use as well as form of hands, to scoop out the earth, to form its habitation, or to pursue its prey. Longer legs would have prevented the quick repetition of its strokes in working; and the oblique position of the fore-feet, throws all the loose soil behind the animal. The form of its body is also admirably contrived for its way of life: the fore-part is thick and very muscular, giving great strength to the action of the fore-feet; and the hinder-parts, which are small and taper, enable it to pass with great facility through the earth.

This animal has six cutting-teeth in the upper, and eight in the lower-jaw, with two canine in each. It has so tough a skin that it is difficult to cut through it: the fur is short, close set, and softer than the finest velvet. Tho'

usually black, it is sometimes found spotted, and sometimes quite white. This animal is about five inches and three quarters long, and the tail one inch.

As these creatures seldom appear above ground, they have not many enemies, and readily evade the pursuit of those animals that are stronger and swifter than themselves. Inundation is the most fatal to them, and whenever such a calamity happens, numbers of them are seen attempting to save themselves by swimming, and using every effort to reach the higher grounds. In these cases the greatest part of them perish, together with their young which remain in the holes behind. If these accidents did not sometimes happen, they would, from their great fecundity, become extremely troublesome and injurious : as it is, indeed, they are considered by the farmer, in some places, as his greatest pest.

The mole breeds in the spring, and brings forth four or five young at a time. Its nest is made of moss under the largest hillocks, a little above the surface of the ground ; and, among the other mole-hills, it is easy to distinguish

guish that in which the female has brought forth her young. In order to form this retreat, the female begins by making a spacious apartment, which, at proper distances, is supported within by partitions to prevent the roof from falling. Round this she beats the earth very firm, in order to keep out the rain: the hillock in which this apartment is made, being raised above ground, the apartment itself is consequently above the level of the plain, and therefore less subject to slight inundations. The habitation being finished, she makes a nest for her young, of moss and dry leaves, where they lie secure from wet and danger.

The mole does great damage in gardens and meadows, by throwing up the soil and loosening the roots of plants: it is most active before rain, and in winter before a thaw, the worm being then in motion; but, in dry weather, this animal seldom forms any hillocks, as it then penetrates deeper after its prey, which, at such seasons, retires far into the ground. The mole shews great dexterity in skinning a worm, which it always does before it eats it, ingeniously stripping off the skin from one
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end to the other. As the skin of this animal is extremely soft and beautiful, it is remarkable that it has not been turned to advantage. Agricola informs us that he saw hats made from it, which were the finest and most beautiful that could be imagined. It is remarkable, though we are assured it is strictly true, that these animals are not to be found in Ireland.

The common method of destroying moles, says the author of the Farmer's Dictionary, is by traps, made in the following manner.

Take a board, about three inches and a half broad, and five inches long: on one side thereof raise two small round hoops or arches, one at each end, like the two hoops or bails of a carrier's waggon, capacious enough for a mole to creep through easily: in the middle of the board make a hole about the size of a goose-quill, and have in readiness to put into it a stick about two inches and a half long, fitted at one end to the hole, and a little forked at the other. Cut also a hazel or other stick, about a yard, or a yard and an half long, which will rise with pretty strong elasticity, when it is stuck into the ground; and

to the end of this stick fasten a very strong noose of horse-hair, made so as to slip easily. Have likewise in readiness four small hooked sticks: then go to the furrow or passage of the mole, and after you have opened it, fit in the little board with the bended hoops downward, so that when the mole passes that way, it may go directly through the two semi-circular hoops. But before you fix the board in this manner, put the hair string through the hole in the middle of it; place the noose in a circular form, so as to make it answer to the two hoops; put the small stick before-mentioned gently into the hole in the middle of the board, so as just to stop the knot of the hair string, without entering so far as absolutely to tighten it. Then fasten the board down with four hooked sticks, and cover it with earth. When the mole, passing in its furrow, comes into this trap, it will displace the small stick that hangs perpendicularly downward, the knot will then be drawn through the hole, and the noose instantly straightened by the rising of the end of the hazel stick to which it is fastened, which will catch the mole round the neck.

Others,

Others, watching their motions in the morning and evening, which are their usual times of stirring, dig them out in a moment with a spaddle : and, about March, which is their time of breeding, numbers of their young ones may be destroyed by turning up their nests, which are generally in the largest hills ; and the old ones who come to seek their young will presently be taken.

Some approve of the pot-trap, which is a deep earthen vessel set in the ground with the brim even with the bottom of the mole tracks. The season for using this is when the moles couple, which is about the beginning of March, or perhaps somewhat earlier.

Mr. Worlidge says, they may be driven from the gardens, meadows, and other places where a person would not choose to dig, by fuming their holes with brimstone, garlick, or other unfavoury things : and that the putting a dead mole into a common haunt, will make them absolutely forsake it : to which Mr. Mortimer adds, but only upon report, that white hellebore and the roots of palma christi, dried, powdered, and sifted through a fine sieve, then

then mixed with barley-meal and eggs, and worked into a paste with wine and milk, will kill them, if laid in little pellets under their hills.

The writers of the *Memoirs of the Society of Agriculture at Angers*, recommend hazel-nuts boiled in an infusion of hellebore, as a sure method of destroying moles. Two or three of these nuts are to be laid under each mole-hill, and the creatures, by being fond of that fruit, will be poisoned by eating them.

The way to remove mole-hills and ant-hills, which are not only disagreeable to the sight, but injurious to the pasture, and a great hindrance to the mowing of the grass, especially where they are numerous, is, particularly in regard to the latter, either to divide the turf which grows over them, into three parts, with a spade, or other instrument, then to pare it off each way, to dig out the middle or core of the hills, to spread this mould over the other ground, to leave the holes open all the winter, that the ants may be killed, or lay the turf down again in the spring, and to roll those spots after the re-instated turfs are settled, and
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their grass has taken fresh roots ; or, which is a more expeditious method, to scoop them out at once, with what Mr. Bradley calls a scolloped mole-hill plough.

When this plough is used, the point of the scolloped spade must be set to the bottom of the hill, by raising the plough-filts, so that it may go into the ground ; and when the hill is almost cut through, the point should be raised up again, by weighing a little on the filts.

The hollow left by this plough will receive the rain as it falls, and this will drown the remaining ants.

After the mole and ant-hills, and other inequalities have been thus taken off, the best way is to carry them to a corner of the field, there to break them well to pieces, and mix them with a considerable portion of lime, or other manure suited to the soil, which will effectually destroy every remains of the ants, and convert the whole to good manure, which may then be profitably spread all over the surface of the ground. The spots on which the mole or ant-hills stood, should be loosened with a spade, and then mixed with

lime

lime or other manure, and afterwards be laid down with clean grafs-seeds.

THE SIBERIAN MOLE.

IT has a very short nose, no ears, and three toes on the fore-feet, with a very large claw on the outer toe. It has four toes on the hinder-feet, its body is of an equal thickness, and its rump quite round. It is of a beautiful green and gold colour, variable with the light. It has no tail, and is a native of Siberia. Mr. Buffon calls it *La Taupe dorée*, or the Golden Mole.

THE RADIATED MOLE.

THIS animal has small fore legs, with five long white claws on each: the nose is long, and the edges are beset with radiated tendrils. The hair on the body is very short and fine, and of a dusky colour. The hinder-legs are scaly, and it has five toes on each foot. The length of this animal, from the nose to the tail, is about three inches and three quarters, and the tail, which is slender and taper, is about an inch

and a quarter long. It inhabits North-America, and feeds on roots.

There is another animal found in North-America, called the long-tailed mole, with broadish fore-feet, and scales on the hind-feet, having a few short hairs on them : the claws on the fore-feet resemble those of the common mole ; those on the hind-feet are very long and slender. The fur on the body is soft, long, and of a rusty brown. The tail is two inches long, and covered with short hair. The length of the body is about four inches and an half.

THE BROWN MOLE.

THIS animal has a slender nose, the upper-jaw longer than the under, with two cutting-teeth in the former, and four in the latter, the two middle of which are very small. It has no canine teeth. The fore-feet are broad, and the nails long ; the hind feet are small, with five claws on each. The hair is soft, glossy, and brown at the ends, though grey at the bottom. The feet and tail are white. The length of this animal, from the nose to the tail, is about five inches and an half ; the tail

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Gerboa.



Radiated Mole.



Long-tailed Mole.



Hedge-hog.

is very slender, and about three quarters of an inch long. It is found in North-America.

There is another species found in America, called the red-mole : it is of a pale reddish colour, has three toes on the fore-feet, and one on the hind. It resembles the European kind in the form of the body and tail.

THE HEDGE-HOG.

THOUGH the hedge-hog has a most formidable appearance, it is one of the most harmless animals in the universe. Incapable or unwilling to offend, all its precautions are only directed to its own security. It is armed with a thousand points, not to invade, but to defend it from the enemy. Other creatures may rely upon their force, their cunning, or their swiftness ; but, destitute of all these, this animal has but one expedient for safety, from which alone it often finds protection. Whenever it is attacked, it withdraws all its vulnerable parts, rolls itself into the form of a ball, and presents nothing but its defensive thorns to the enemy.

The head, back, and sides of this animal are covered with long sharp spines or prickles; the nose, breast, and belly, are cloathed with a fine soft hair; the legs are short, almost naked, and of a dusky colour: the ears are broad, round, and naked; the eyes are small, and placed high in the head: the mouth also is small, but well furnished with teeth; serving, however, only to chew its food, but of little use in attacking other animals, or defending itself against them. The toes on each foot are five in number, long and separated: the prickles, which are about an inch in length, are very sharp-pointed; their points are white, the middle black, and the lower part white. The tail is little more than an inch long, and so concealed by the spines as hardly to be visible. The length of this animal, from the nose to the tail, is about ten inches.

When rolled up in a lump, the hedgehog patiently waits till its enemy passes by, or is fatigued with fruitless attempts to annoy it. The cat, the weasel, the ferret, and the martin, soon decline the combat; and even the dog generally makes his attacks in vain.

Increase of danger does but increase the animal's precautions to keep on its guard. In attempting to bite, the assailant more frequently receives than inflicts a wound. The enraged dog may bark, and roll the animal along with its paws; but the hedge-hog submits patiently to every indignity, in order to remain secure. At length the dog, after expressing his chagrin by barking, leaves the inoffensive animal where he found it; who perceiving itself out of danger, ventures to peep out from its ball, and if not interrupted, makes the best of its way to its retreat.

Like most of the wild animals, the hedge-hog sleeps by day, and is in motion during the night. It feeds on roots, fruits, worms, and insects; and is erroneously charged with sucking cows, and hurting their udders. But the smallness of its mouth is sufficient to exculpate it from this reproach. It usually resides in small thickets, in hedges, and at the bottom of ditches covered with bushes, where it makes a hole of about six or eight inches deep, and lies well wrapped up in moss, grass,

or leaves ; and, during winter, rolls itself up and sleeps out that dreary season.

This animal is said to be very hurtful in gardens and orchards, but this conjecture appears to be ill-founded. Mr. Buffon, who kept these animals tame about his house, acquits them of the reproach of being mischievous in the garden. " I permitted several of them," says he, " to go about my garden ; they did very little damage, and it was scarce perceivable that they were there : they lived upon the fruits that fall from the trees ; they dug the earth into shallow holes ; they eat caterpillars, beetles, and worms ; they were also very fond of flesh, which they devoured boiled or raw." In short, the hedge-hog appears to be a very serviceable animal in ridding our fields of worms and insects, which are so injurious to vegetation.

The barbarity of anatomists furnishes us with an amazing instance of the patience of this animal ; they dissected one alive, whose feet they first nailed down to the table ; and it endured that, and every stroke of the operator's knife,

knife, without a single groan*. These animals bring forth about the beginning of summer.

THE TENDRAC; or, ASIATIC HEDGE-HOG.

LIKE the common hedge-hog, this animal is covered with prickles, though mixed in a greater proportion with hair; but they do not defend themselves like that animal, by rolling up into a ball. It has a long slender nose, short round ears, and short legs. The face, throat, belly, buttocks, and legs are thinly covered with whitish fine hair. The tail is very short and covered with spines. It is about the size of a mole. It inhabits the isles of India, and that of Madagascar.

There is another which Mr. Buffon calls the tanrec, which is rather larger. It is covered with spines only on the top and hind part of the head, the top and sides of the neck, and the shoulders: the rest of the body is covered with yellow bristles, intermixed with a few black, which are longer than the others.

* Derham's Phys. Theol. 240.

Each of these animals is a variety of the same species, having five toes on each foot. They inhabit the isles of India, and Madagascar. They grunt like hogs, grow extremely fat, and multiply greatly: they frequent shallow water, whether fresh or salt: they burrow on land; and lie torpid six months in the year, during which time their old hair falls off. Their flesh, though very indifferent, is eaten by the Indians, and thought by them a delicacy.

THE GUIANA HEDGE-HOG.

THIS animal has no external ears, but it has two orifices which answer the purpose of ears. The head is short and thick; the back and sides are covered with short spines of an ash-colour tinged with yellow. The face, belly, legs, and tail, are covered with soft whitish hair. The length of this animal is about eight inches. It has a short tail, and long crooked claws. It inhabits Guiana.

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THE SLOTH.

THERE are two different kinds of the sloth, distinguished from each other by their claws; the one having only two claws upon each foot, and being without a tail; the other having a tail, and three claws upon each foot. The former in its native country is called the unan, and the latter the ai. The snout of the unan is longer than that of the ai, the ears are more apparent, and the fur is different. In the number of ribs also they differ greatly; the unan having forty-six, and the ai but twenty-eight. But notwithstanding these differences are so very observable, they have been but little regarded in the description of two animals which bear so strong a resemblance to each other in the general out-lines of their figure, in their appetites, their nature, and their helpless formation.

These animals are both described under the common appellation of the sloth, and their habits are sufficient to excite our astonishment and curiosity. I shall take my description from the ai, which differs from the other only in the trifling particulars abovementioned, and in being somewhat more active. It

is about the size of a badger, its fur is coarse and irregular, and in some degree resembles dried grass: the tail is so short as to be little more than a stump; the mouth extends from ear to ear. It has a blunt black nose, very small external ears, and small heavy black eyes. Its legs are thick and awkwardly placed. The colour of the face and throat is a dirty white; the body and limbs are covered with hair of a lightish brown colour. The feet of this animal proceed from the body in such an oblique direction, that the sole of the foot seldom touches the ground. When it is therefore obliged to make a step forward, it scrapes on the back of the nails along the surface, and thus wheeling the limbs circularly about, it at length places its foot in a progressive position; the other three limbs are brought about with equal difficulty; and thus it travels at the rate of about three yards in an hour. The poor creature indeed seldom changes place but by constraint, and when strongly impelled by hunger.

The sloth inhabits many parts of the eastern side of south America. It is the meanest, the most sluggish, and the most ill formed of all animals. It lives entirely upon vegetable food, particu-

larly on the leaves and fruit of trees, and it often feeds even upon the bark, when nothing remains on the tree for its subsistence. It is a ruminant animal, and, like all those of the kind, has four stomachs, which consequently require a large share of provision to supply them, and in less than a fortnight it generally strips a large tree of all its verdure. While any thing remains that will supply its hunger, it keeps aloft, unwilling to descend. But when totally destitute of provisions above, it slowly crawls from branch to branch, in search of something to appease its appetite, and at last is obliged to encounter the dangers that attend it below.

It is with the utmost pain and difficulty that this animal ascends a tree, but it is utterly unable to descend in the same manner; it therefore forms itself into a ball and drops from the branches to the ground; and as it is incapable of exerting itself to break the violence of its descent, it drops like a heavy shapeless mass, and, in the fall, feels no inconsiderable shock. There it remains for some time inactive, and then prepares for a journey to some neighbouring tree. This is the most tedious and painful journey that can be

conceived: to travel to a tree at an hundred yards distance, is the indefatigable labour of a week. Its motions are almost imperceptible, and it frequently baits upon the road. At every effort to move, it sets forth a most plaintive and melancholy cry, which at once produces pity and disgust. This plaintive sound appears to be its chief defence, for every beast of prey is so affected by the noise as to quit it with horror*. When it is arrived at its destined tree, it mounts it with greater ease than it moved upon the plain. It falls to with a most excellent appetite, and by greedily devouring the leaves and bark, destroys the very source that supplies it.

The look of this animal is so piteous as to excite compassion; and its cry is generally accompanied with tears which dissuade every creature from injuring so wretched a being. Its abstinence from food is so powerful, that one of them was known to remain forty days without meat or drink. The strength of its feet is so extraordinary, that whatever it seizes on cannot escape its claws. Kircher informs us

* Ulloa's Voyage. i. 103.

that a sloth seized a dog with its feet, and held him four days in that situation, till the poor animal perished with hunger.

Were we to measure the happiness of this animal by our own sensations, it is certain that nothing can be more miserable, but it may probably have some stores of comfort which we are strangers to, and which may place it upon a level with some other ranks of the creation. If it is sometimes fatigued with pain, distress and labour, it is compensated by a larger portion of plenty, indolence, and security. These animals are, however, very differently formed from all other quadrupeds, and doubtless have different enjoyments. Like birds they have but one common vent for the purposes of propagation and their natural discharges. Like the tortoise, which they resemble in the slowness of their motion, they live a considerable time after their nobler parts are wounded, or even taken away.

The unan, or sloth with two toes, inhabits South America, and the isle of Ceylon; though Mr. Buffon has fixed the residence of this genus only to America. Seba expressly says his
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specimen was brought from Ceylon; and Mr. Pennant assures us that he was informed by a man distinguished in the literary world, who had been long resident in India, that he had seen this animal brought from the Paliacat mountains that lie in sight of Madras. It is therefore evident that it is common to both continents.

Barbot and Bosman describe an animal by the name of Potto, that is met with in Guinea, which is at least a species of this genus, as they ascribe to it the attributes of the former; and these writers were too observant of the animals of Guinea to mistake one, whose characters are so strongly marked as those of the sloth.

Insignificant as this animal is, who yet can help observing the special hand of a gracious Providence, in the formation and care of it? Not designed for motion, its feet are nevertheless furnished with claws, which enable it to hold fast in that station, which is necessary for it. Helpless as it is, and liable to a thousand mischances on the ground, the universal Provider hath assigned it a place of safety, where it finds plenty of food; and as changing its place, would be uneasy and dan-

gerous, he hath made drinking unnecessary to it, from the nature of its food and its own constitution. To render it, defenceless as it is, the less obnoxious to pursuit, the colour, wherewith the Creator hath cloathed it, serves to secure it even from view;— and the amazing instinct wherewith it is endow-
ed, and which we have remarked, abundantly evinces a designing and directing hand.

But while we behold, with pleasure, the traces of provident care even in this creature, let it shew us as in a glass, the despicable figure of that vice, whence it hath its name, and which it so well delineates. The sleepy, eating, lazy, worthless, useless animal, which lodged upon a green branch, would be content never to move therefrom, so it could there continually be fed— eat at ease, and slumber at will — and which indeed never leaves the branch, till it hath destroyed it, and thus is compelled to move:— This contemptible lump of matter well represents to us the man, who lives only to eat and to drink; to indulge his appetite, to feast his flesh, to doze away his life in sleepy inactivity; and to consume himself, (his nobler self,

his soul,) and his substance, in wretched indolence, and bodily indulgences. Let him but sleep; cram but his overcharged maw; molest not his quiet; let him sit still, or saunter about, and yawn, and stretch himself—and he is at the very pinnacle of his wishes! Useless and unprofitable—Dost thou not remember that thou art a man! That thou wast not born merely to breathe an animal life—*fruges consumere*; not merely sloth-like to eat up the tree, upon which thou art stationed? Thine it is to cultivate that tree; thou hast a soul, which it much behoves thee, by diligent care, to fit well for an hereafter: thou art a member of the community, and art called upon industriously to fill up the duties of thy place. Reason and religion alike demand an exertion of thy faculties: and to be a man thou must labour!

THE ARMADILLO.

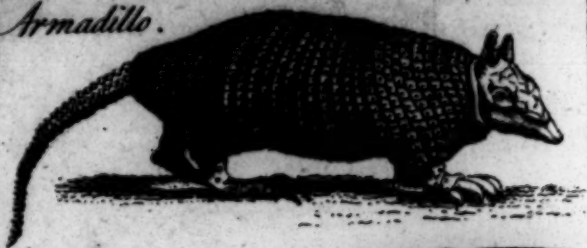
Nature seems to have reserved all the wonders of her power for those remote and thinly inhabited countries, where the men are savage and the quadrupeds various; and becomes more extraordinary in proportion as she retires from

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human inspection. The truth is, that wherever mankind are polished or become populous, they shortly rid the earth of these half-formed productions, which, in some degree, incumber the soil. In a cultivated country they soon disappear, and continue only in those remote deserts, where they have few enemies but such as they are able to oppose or avoid.

The armadillo is covered, like a tortoise, with a shell, or rather a number of shells; therefore its other proportions are not easily discerned. At the first view, it seems a round misshapen mass, with a long head, and a shortish tail. It is of various sizes, from a foot to three feet in length, and covered with a shell elegantly and regularly divided into several pieces, which lap over each other like those on the tail of a lobster. The difference in the size of this animal, and in the number or disposition of its plates or bands, have been considered by some naturalists as constituting so many species; but in all the animal is partially covered with this coat of mail. This shell which perfectly resembles a bony substance, covers the head, neck, sides and

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rump,

rump, and the tail to the very point. The throat, breast, and belly, are covered with only a white soft skin; but even in the parts that are softest, the skin seems to have a tendency to ossify. The shell on the upper part of the body is composed of more pieces than one, which, as I have already observed, slide over each other as in the tail of a lobster, and are connected by a yellow membrane, like the folds on the tail of that animal. By this means the armadillo has a motion in its back, and the armour yields to its necessary inflections. From the bands, which are of various numbers and sizes, these animals have been distinguished into various kinds. In general, however, the shoulders are covered with one large piece, and the rump with another. Between these, on the back, the bands are placed in different numbers, lapping over each other, and giving play to the whole. They also open down along the back, as well as crossways; so that the animal can move in any kind of direction.

Some of these animals have only three of these bands between the large pieces, and are therefore called three-banded armadillos: others have six, a

third kind eight, a fourth, nine, and a fifth twelve; which are all named from their number of bands. In the last, or sixth kind, there is but one large piece, which covers the shoulders, the rest of the body being entirely covered with bands down to the tail. In different kinds, these shells are differently coloured, but they are principally of a dirty grey.

These shells might be sufficient to defend this animal from a feeble enemy, but they could not shield it from a powerful antagonist. Nature has therefore furnished the armadillo with a method of protecting itself like that of the hedge-hog. Whenever it perceives itself attacked, it draws its head under its shells, leaving no part of it to be seen but the tip of the nose: if the danger encreases, the cautions of the animal encrease in proportion; it then draws up its feet under its belly, and unites the two extremities, while the tail appears as a band to strengthen the connection: thus it forms itself into a kind of ball, though it is a little flattish on each side. It thus becomes invulnerable, and continues in this position as long as danger seems to threaten it, and

and sometimes for a considerable time afterwards. While it remains in this situation it is tossed about at the pleasure of every other quadruped, and has very little the appearance of a creature endowed with life and motion.

The Indians take this animal by the tail, when it immediately sticks its claws in the earth so strongly, that there is no moving it till the Indian tickles it with a stick. They have another method, when they find the armadillo in this position; that is, to lay it before the fire, which soon obliges the poor animal to unfold itself, and to face a milder death, to escape one that is more savage. This animal is also hunted with little dogs, which, by their barking, give notice to their master of its haunts, who digs it out of its burrow. It is, however, extremely dangerous to take it out incautiously, on account of the snakes that usually lurk in the burrows.

This animal inhabits South America; the smaller species live in moist places, the larger in dry, and at a distance from the sea: it burrows under ground, keeps its hole in the day, and rambles out at night. It feeds on potatoes

tatoes, melons, and roots, and does infinite damage to plantations. It drinks great quantities, grows very fat, and when young, is reckoned delicious eating: but, when old, it has a disagreeable musky taste. These animals breed every month, and produce four at a time *. This animal is a native only of America, for before the discovery of that continent, they were utterly unknown. It is an inoffensive creature, unless it finds its way into a garden or plantation. Though natives of the warmest parts of America, they bear the rigour of our climate without any inconvenience. Their motion is a kind of swift walk, but they can neither run, leap, or climb trees; so that they have no other method of escaping from their pursuers, than by making towards their hole as expeditiously as they can: or, if this should happen to be impracticable, to make a new hole before the arrival of the enemy. For this purpose they require but few moments, for in this business even the mole itself cannot be more expert, being furnished with claws extremely large, strong, and

* Rochfort Antilles. i. 286.

crooked, and generally four upon each foot.

The armadillo is sometimes caught by the tail as it is making its way into the earth, but, in these cases, it usually leaves the tail in the hand of the pursuer, being satisfied to preserve its life with the loss of it. The hunters, sensible of this, never pull the tail with all their force, but hold it while another digs the ground about it, by which means the animal is taken alive. If the armadillo be near a precipice, it frequently escapes by rolling itself up, and then tumbling down from rock to rock, without the least danger or inconvenience.

Some naturalists are of opinion that there is a kind of friendship between the armadillo and the rattle snake. It is certain indeed that they live peaceably and commodiously together, and are often found in the same hole; but it is probably a friendship of necessity to the armadillo: the rattle-snake takes possession of its retreats, which neither of them are disposed to quit, each being incapable of injuring the other.

It has already been observed that all these animals resemble each other in

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the general character of being cloathed with a shell, yet they differ greatly in their size, and in the parts into which their shell is divided. The first of this kind has but three bands between the two large pieces that cover the back, and is called the tatu apara. In this the tail is shorter than in any other kind, and does not exceed two inches in length, though the whole shell, including its several parts, is a foot long and eight inches broad. The second, which is called by Mr. Buffon the encoubert, is distinguished from the rest by six bands across the back. It has a small head and a very long tail, and is about the size of a sucking pig. The third, which is the tatuette of Mr. Buffon, is considerably smaller than the former, and is furnished with eight bands. The fourth is the pig-headed, or American armadillo, having nine bands: this is larger than either of the former, being about two feet long from the nose to the tail. The fifth is the kabbaßou, which is the largest of the kind, and is furnished with twelve bands; some of these measure upwards of three feet in length; but they are never eaten as the others are.

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The sixth is called the weasel-headed armadillo, by Mr. Grew in his *Rarities* *, and has eighteen bands, with a large piece before, and nothing but bands backwards. The body of this animal is about thirteen inches long, and the tail five inches. Those which have the fewest number of bands, present great interstices between them when rolled up, and are more easily vulnerable. The largest kinds have the most solid shells, but their flesh is harder, and not so delicious as that of the smaller. It is indeed generally thought unfit for the table.

THE MANIS, OR PHATAGIN.

THE back, sides, and upper part of the tail of this animal are covered with large strong scales. It has a small mouth, a long tongue, and no teeth. It has a slender nose and a smooth head: the body, legs, and tail are guarded by large sharp-pointed striated scales: the throat and belly are covered with hair. It has short legs, and four claws upon each foot, one of which is very small.

* Grew's *Rarities*. 19.

The tail is a little taper, but blunt at the end. This animal is particularly distinguished by the length of its tail, which is considerably above twice the length of its body; the body not exceeding fifteen inches in length, and the tail at least three feet four inches. It is found in Africa, and the warm latitudes of the East. It approaches so near the genus of lizards, as to appear to be the link of the chain of beings which connects the proper quadrupeds with the reptile class. These animals not being very numerous, it is imagined their fecundity is not great.

THE PANGOLIN, OR SHORT-TAILED MANIS.

OF all other animals, the pangolin, which is a native of the torrid climates of the ancient continent, is the best protected by nature from external injury. The length of the body is three feet, and the tail is about the same length. Like the lizard, it has a small head, a long nose, a thick neck, a long body, short legs, and a long tail. It has no teeth, but is armed with five toes on each foot. Its ears resembles

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human ears. But it is principally distinguished by its scaly covering, which defends the animal on all parts, except under the shoulders, the lower part of the head and neck, the breast, the belly, and the inner side of the legs; these parts being covered with a smooth soft skin. At all the interstices between the shells of this extraordinary creature, strong hair like bristles are seen, which are yellowish towards the roots, and brown at the extremity. The scales are of different sizes, and appear stuck upon the body somewhat like the leaves of an artichok, the largest being always towards the tail. The substance of those scales resembles that of horn; they are convex on the outside, and concave in the inner.

When the pangolin has acquired its full growth, it is said these scales will turn a musket ball; it therefore fears nothing from the efforts of all other creatures except man. When danger approaches, it rolls itself up like the hedge-hog, presenting no part to the assailant but the cutting edges of its scales. The length of the tail, which might be thought easily separable, increases the security of the animal, by
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being lapped round the rest of the body. The shells are so thick and pointed that they repel every animal of prey; serving as a coat of armour that wounds while it resists. The tiger, the leopard, the panther, and the hyæna, in vain attempt to force it; in vain do they tread upon it, and roll it about with their paws, the pangolin is perfectly secure within, while its invaders suffer for their rashness. Man alone seems furnished with arms to compel it to surrender: the negroes, who consider the flesh of this animal as a very great delicacy, beat it to death with very large clubs.

But though so formidable in its appearance, there cannot be a more inoffensive animal than the pangolin. If it had the disposition to injure larger animals, nature has rendered it incapable by denying it teeth: the bony matter which supplies the teeth of other animals, is probably exhausted in this, in supplying the scales that go to the covering of its body; but as it lives entirely upon insects, nature has fitted it for that purpose in a very extraordinary manner. Having a long nose, it may be naturally supposed to have a

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long tongue; but to add to its length, it is doubled in the mouth, which enables the animal to extend it many inches beyond the tip of the nose. This tongue is round, very red, and covered with an unctuous liquor, which gives it a shining hue. As ants are the insects on which it chiefly feeds; when the pangolin approaches an ant-hill, it lies down near it, concealing its retreat as much as possible; and, stretching out its long tongue among the ants, keeps it motionless for some time. These insects, allured by the slimy substance with which it is smeared, immediately flock to it in great numbers; and, when the pangolin supposes it has got a sufficiency, it withdraws the tongue, and swallows legions at a time.

As all the force or cunning of this animal is exerted against these noxious insects, it is extraordinary that the negroes should be so eager to kill it; but savage natures pursue the immediate good without being solicitous about the future consequences: they hunt this creature, therefore, with the utmost avidity, for its flesh. These animals chiefly inhabit the most obscure parts of the forest, and dig themselves a retreat

in the clefts of rocks, where they bring forth their young, and are a solitary species, very rarely to be met with. They have no cry, nor make any other noise than a kind of snorting.

THE GREAT ANT-EATER.

THIS animal is called the ant-bear by Ray. It has a long slender nose, small black eyes, and short round ears; the tongue is slender, thirty inches in length, and lies double in the mouth. The legs are slender, having four toes on the fore feet, and five on the hind: the two middle claws on the fore feet are very large, strong, and hooked; the hair on the upper part of the body is black mixed with grey and about six inches in length: a black line, bounded above with white, extends from the neck cross the shoulders to the sides. The tail is covered with coarse black hair about a foot long. The length of this animal, from the nose to the tail, is about three feet ten inches, and the tail two inches and a half.

This animal is a native of Brasil and Guiana. It lives chiefly in the woods, and conceals itself under the fallen leaves.

leaves. It seldom ventures from its retreat, and, when it does, the industry of an hour supplies it with food for several days. It feeds entirely upon ants and insects, which, in the countries where it is bred, are found in the greatest abundance, and often build themselves hills which are five or six feet high, where they live in a community. As soon as it discovers their nests, it overturns them or digs them up with its feet; then thrusts its long tongue into their retreats, and, penetrating all the passages of the nests, withdraws it into its mouth loaded with prey. Sometimes when it approaches an ant-hill, it creeps slowly forward on its belly, taking every precaution to keep itself concealed, till it comes within a convenient distance of the place where it intends to make its banquet; there lying closely at its length, it thrusts forth its tongue (which is round and red and often near two feet long) across the path of those industrious insects, where it lies motionless for several minutes. The ants of that country, some of which are half an inch long, allured by its appearance, come forth and swarm upon

on it in great numbers, and wherever they touch they remain; for the tongue of this animal is covered with a slimy fluid, which, like bird-lime, entangles every creature that lights upon it: when this instrument has secured a sufficient number of ants, the animal immediately draws it in, and instantly devours them all: then, remaining in the same position, it practises the same arts till its hunger is appeased, and then retires to its lodging-place; where it continues till it is again excited by the calls of hunger.

Helpless as this animal appears to be, and though without teeth, it is fierce and dangerous, and, when driven to an extremity, will fight with its claws with great obstinacy; scarce any creature that gets within its fore feet can disengage itself: even the panthers * of America are often unequal in the combat; for if the ant-eater once obtains an opportunity of embracing them, it fixes its talons in their sides, and both fall together, and generally both perish; for such is the stupidity or vindictive desperation of this animal,

* Gumille Oronoque, iii. 232.

that it will not extricate itself even from a dead adversary. The ant-eater sleeps in the day, and preys by night: its flesh has a disagreeable strong taste, but it is eaten by the Indians.

THE LESSER ANT-EATER.

IT has a long slender nose, bending a little downward, a little mouth, and small black eyes. Its ears are also small and upright: it has four claws on each of the fore-feet, and five on those behind: the hair is of a pale yellow colour, and hard and shining: a black line crosses the shoulders on each side of the neck, and meets at the lower end of the back. The length of the body of this animal is about nineteen inches, and the tail ten inches. It inhabits Brasil and Guiana, and its manners are much the same as the last. It climbs trees, and takes hold of the branches with its tail.

THE LITTLE ANT-EATER.

THIS animal has a conic nose, bending a little downward; the ears are small and almost hid in the fur: the head,



Lesser Ant Eater.



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head, body, limbs, and the upper-part and sides of the tail, are cloathed with long soft silky hair, or rather wool, of a yellowish brown colour. It has two hooked claws on the fore-feet, the exterior of which is considerably the largest: it has four claws on the hind feet. The length of the body of this animal is about seven inches and an half, and that of the tail eight inches and an half: the tail is thick at the base, and tapers to a point. It inhabits Guiana, and climbs trees in pursuit of a species of ants which build their nests among the branches. Like the former, it lays hold of the branches with its tail.

There is a fourth species found at the cape of Good-Hope and in Ceylon, having four toes on the fore-feet, and pendulous ears, which distinguish it from other kinds. Kolben describes their manners particularly, saying they are toothless, that if they fasten their claws in the ground, no man has strength sufficient to pull them away; and that they thrust out their clammy tongue into the ant's nest, and draw it into their mouth covered with insects. Mr. Strachan, in his account of Ceylon, describes

describes an animal which the natives call the talgoi, or ant-bear, in the same manner. It is therefore certain that these animals are common to the old and new continents.

By this animal we see the great provider takes care of the most singular of his productions; and those which appear to us most destitute of means to preserve themselves, are often the happiest of all. What an emblem is this voracious depredator of the generation of ants, of those indolent and gluttonous feasters, who live upon the destruction of a thousand inoffensive creatures! Nature leads him to this method, in order to support his being: but the human Epicures destroy only to satiate the meanest and most filthy of animal appetites! It raises our indignation, when we behold the industrious ants a prey to such an animal; (whose utility we know not, other than that the fur is very fine and beautiful) but alas, when we reflect upon the human race, do we not see the industrious and laborious a continued prey to, and the great means of supporting the voluptuous and indolent! The king himself, says the wise man, is served by the field;

held; and indebted to the unwearied
toils of the meanest of the people! It
cannot fail to affect an humane heart to
consider the state of things, in this pre-
sent imperfect scene; the miseries of
the poor, and the hardships of far the
greater part of mankind. While the
view must lead every serious mind to an
earnest desire for the speedy accomplish-
ment of the divine purposes, and for
the establishment of that happy holy
kingdom, where sorrow, sin, and death;
where mutual depredation, and mutual
destruction, shall never be known:
where there shall not be found the
rampant sensualist, nor the ambitious
madman, the murderer of his species,
and the most guilty of human criminals.

I would only wish to observe, (and I
hope the observation will not be thought
over-strained) that as the great God of
his creatures provides abundantly for
his animal, which seems furnished with
so small means of support, we may
learn from hence a cheerful depen-
dence upon him, when difficulties press,
and outward means of supply are less
copious. He is equally able to bless, by
many as by few; and if we, using every
rational endeavour, resign with filial
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confidence the issue of all events to him, we may be satisfied, that he who feedeth the ravens when they call, will never forsake his children: we may be assured, that he who could feed so many thousands with so small a portion of bread, can never want ability to succour and assist us. We may rest happy in the care of unerring wisdom, unexhausted goodness, and unbounded power.

THE MORSE, OR WALRUS.

THIS animal, which is somewhat of the seal kind, has a round head, a small mouth, and very thick lips, covered both above and below with pellucid bristles as thick as a straw. It has two small fiery eyes, and two little orifices instead of ears: the neck is short, and the body thick in the middle, tapering towards the tail. The skin is thick and wrinkled, having short brownish hairs thinly dispersed over it. Its legs which are short, have on each five toes, all connected together by webs, and having small nails on each of them: the hind-feet are very broad, and the hind legs are usually extended on a line with

with the body; the tail is very short. The length of this animal, from the nose to the tail, is from twelve to eighteen feet, and it generally measures ten or twelve feet round in the thickest part of the body. Their teeth are generally from two to three feet long, and the ivory is held in greater esteem than that of the elephant, being both whiter and harder. On the coast of the Icy sea, where these animals are seldom molested, and consequently have time to attain their full growth, the teeth have been sometimes found of the weight of twenty pounds each*.

These animals inhabit the coast of Spitzbergen, Nova Zembla, Hudson's-Bay, and the gulph of St. Laurence, and the Icy-Sea, as far as cape Tschuktschi. In some places they appear in herds of hundreds at a time: they are very shy animals, and avoid those places which are much frequented by mankind. They are extremely fierce, and, if wounded in the water, endeavour to sink the boat of their adversaries, either

* Hist. Kamtschatka, 120.

by rising under it, or by striking their large teeth into the sides : they roar very loud, and follow the boat as long as they can keep it in view. They are often seen in great numbers, sleeping on an island of ice ; and, if they are disturbed, they plunge into the sea with great impetuosity. At these times it is dangerous to approach the ice, lest they should tumble into the boat, and overturn it.

These animals never go upon land until the coast is clear of ice, and then they sometimes go ashore in amazing numbers. As soon as the first arrives upon dry land, it will never move till another comes and forces it forward, by beating it with its large teeth : this receives the same treatment from the next, and so in succession till they are all landed. On the Magdalene isles in the gulph of St. Laurence, the hunters watch the landing of these animals, and as soon as they find a sufficient number for what they call a cut, they go on shore, each armed with a spear, sharp on one side like a knife, with which they cut their throats. Particular care must be taken not to stand

stand in the way of those which attempt to return to the sea, which they do with great agility by tumbling headlong ; for their vast weight would crush any person to death. They are killed for their oil, one animal sometimes producing half a tun : and Mr. Bufson informs us, that he has seen braces for coaches made of their skins, which were both strong and elastic.

The morse produces one or two young at a time; it feeds upon sea-herbs and fish : it will also eat shells, which it digs out of the sand with its teeth. They are said to ascend rocks or pieces of ice by the assistance of their teeth, fastening them to the cracks, and by that means drawing up their bodies. Except mankind, this animal appears to have no other enemy than the white bear, with which it often combats, and is generally victorious, on account of its large teeth.

THE INDIAN MORSE, OR
WALRUS.

THIS is the dugon of Mr. Buffon, and has two short canine teeth, or tusks,

tusks, placed in the upper-jaw, pretty close to each other. It has four grinders on each side of the upper-jaw, placed at a distance from the tusks, and three on each side in the lower-jaw. It inhabits the Cape of Good-Hope, and the Philippine isles. It is said to go on land to feed on the green moss.

THE SEAL.

THE seal resembles a quadruped in some respects, and a fish in others. The head is round, and the nose broad, somewhat resembling that of an otter. It has two canine teeth in each jaw, large whiskers, oblong nostrils, and large black sparkling eyes; the tongue is forked at the end: and it has six cutting teeth in the upper-jaw, and four in the lower. It has no external ears, but holes answering the purpose of ears: the neck is of a moderate length and well proportioned, and the body is the thickest where the neck is joined to it. From thence the animal tapers down to the tail, becoming gradually smaller all the way like a fish. The body is covered with a thick bristly shining

shining hair, the colour of which is very various, being sometimes dusky, sometimes brinded, and sometimes spotted with white or yellow. In most of the above particulars it resembles the quadruped kind, but it greatly differs from all of them in the feet; for, though furnished with the same number of bones with other quadrupeds, yet they are stuck on the body in so remarkable a manner, and are so covered with a membrane, that they would more resemble fins than feet, did not the sharp strong claws, with which they are pointed, shew their proper analogy. The fore-feet, or rather hands, are covered in a thick hairy skin, which, like a fin, assists in swimming; these are distinguished by five long piercing claws. The hind feet are extended on each side of its short tail, covered also with a skin, and both almost joining together at the tail. The usual length of this animal is about five or six feet, though some have been found that have exceeded eight feet. In the formation of the tongue, the seal differs from every other quadruped: it is forked or slit at the end like that of a serpent.

These animals inhabit almost every quarter of the globe, but they are found in great multitudes towards the north and the south. They swarm near the Arctic circle, and the lower-parts of South-America, in both oceans: they are found in the Caspian sea, in the lake Aral, and lake Baikal, which are fresh waters. In the last they are covered with silver hairs.

The water is the most usual habitation of the seal, and its food is whatever fish it can catch. But though it can remain under water for several minutes, it cannot, like the fishy tribe, continue there for any considerable time; and a seal may be drowned like any other terrestrial animal. Being awkwardly formed for going upon land, it seldom ventures at any great distance from the shore, but usually basks, upon the rocks, and when disturbed plunges immediately to the bottom of the water. Its hind-feet being turned backwards, they are entirely useless upon land, and when the creature moves, it drags itself forward like a reptile, apparently with great pain and labour. For this purpose it uses its fore-feet, which, though exceedingly short, en-

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able it to move with so much swiftness, that, for a short space, a man cannot easily overtake it; and it always runs towards the sea, from which it never is far distant.

In the north and icy seas these animals are particularly numerous. It is on those shores where there are few inhabitants, and where the fish resort in great abundance, that they are seen by thousands basking on the rocks, and suckling their young. Like other gregarious animals, they keep a centinel upon the watch, and, upon the least alarm, they plunge altogether into the water.

It is remarkable that these animals generally come on shore in storms and tempests: when every other creature takes refuge from the fury of the jar-ring elements, the seals appear in thousands, sporting along the shore, and seem delighted with the general confusion. Perhaps the sea is then too turbulent for them to reside in; and they come upon land because they are unable to endure the shock of their more natural element.

Seals are animals of passage, and perhaps the only quadrupeds that migrate

grate from one part of the world to another. Quadrupeds in general are contented with their native plains and forests, and seldom wander, except compelled by necessity or fear. But seals change their habitations, and are seen in myriads directing their course from one continent to another. On the northern coasts of Greenland, they are observed to retire in July, and to return again in September, as it is supposed in pursuit of food: but in March they make a second voyage in order to cast their young, and return about the beginning of June, accompanied by their young, observing a certain time and track, like birds of passage. When they engage in this expedition, vast droves of them are seen making towards the north, taking that part of the sea which is clearest of ice, and sailing forward into those seas, where man cannot follow. They are very fat when they leave the coasts to go upon this expedition, but they are excessively lean at their return.

These animals produce two or three young at a time, which, for some short space, are white and woolly: they bring forth in autumn, and suckle their young

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in caverns, or in rocks, till they are six or seven weeks old, at which time they take the sea. The young are remarkably docile, and understand the voice of the mother among the numerous bleatings of the rest of the old ones; they are obedient to her call, and mutually assist each other in distress or danger. Thus early initiated to subjection, they continue to live in society, hunt and herd together, and have a variety of notes or cries, by which they encourage to pursue, or express to each other their apprehensions of danger. Their voices are said, at some times, to resemble the bleating of a flock of sheep, and, at others, to imitate the shriller notes of the cat.

The chief of their food being fish, they are very expert at catching them. Where the herrings are found in shoals, the seals are often seen, and they devour them by thousands: but, when the herring retires, the seal is obliged to hunt after fish which are stronger, and more capable of evading the pursuit. In deep waters, however, they are extremely swift, and dive with great rapidity. The smaller and weaker fishes have no other means to escape their

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their tyranny, than by darting into the shallows.

They are the tyrants of the element in which they chiefly reside, and are not destitute of courage even upon land, except on those shores where there are numbers of inhabitants, and from whence they have been frequently pursued. Along the desert coasts, where they seldom meet with any interruption from man, they are bold and intrepid, and make a very desperate resistance; but a slight blow on the nose immediately kills them, otherwise they will endure many wounds. Where they are not frequently disturbed, they usually sleep very soundly; and it is then that the hunters surprize them. The Europeans, who go into the Greenland seas upon the whale-fishery, surround them with nets, and destroy them, but the Greenlander takes them in a different manner: he paddles away in his little boat, and when he sees one of these animals asleep on the side of a rock, darts his lance with unerring aim, and buries its point in the animal's side. The seal instantly plunges into the sea, and dives to the bottom; but the lance has a bladder fastened to one end, which keeps

keeps buoyant, and resists the animal's descent ; it therefore rises frequently to the top of the water, and every time receives a stroke from the Greenlander's oar, till he at last dispatches it.

These animals are more wary in our climate, and very seldom suffer the hunter to approach them. They frequently appear upon the rocks of the Cornish coast, basking in the sun, or upon the inaccessible cliffs left dry by the ebbing of the tide. There they continue, and are extremely vigilant, continually raising their heads to look about them, to see if any enemy approaches : the only method therefore that can be taken is to shoot them ; but if they happen to escape, they hasten towards the sea, throwing up stones and dirt behind them as they scramble along, at the same time expressing their fears by the most piteous moaning. Should they happen to be over-taken, they make a most vigorous defence with their feet and teeth.

The seal is good food, and is often eaten by voyagers : it is killed for the sake of its skin, and for the oil which is made of its fat ; a young seal yield-
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ing about eight gallons ; their skins are used for waistcoats, covers for trunks, shot-pouches, and many other conveniences : those of the lake Baikal, are sold to the Chinese, who dye them, and sell them to the Mongals to face their fur-coats. These animals are the wealth of the Greenlanders, supplying them with every necessary of life. At the tables of the great, the flesh of this animal was formerly found : among other extraordinary rarities, at a feast provided by archbishop Nevell for Edward the IVth, there were twelve seals and porpoises provided.

The seal indeed is common on most of the rocky shores of Great-Britain and Ireland, especially on the northern coasts. In Wales, it frequents the coasts of Caernarvonshire, and Anglesea.

The natural history of this animal may be further elucidated by the following extracts from a letter of the reverend Dr. William Borlase, dated October 24, 1763.

“ The seals are seen in the greatest plenty on the shores of Cornwall in the months of May, June, and July.

“ They

“ They are of different sizes, some as large as a moderate cow, and from that downwards to a small calf.

“ They feed on most sorts of fish which they can master, and are seen searching for their prey near shore, where the whistling fish, wraws, and polacks resort.

“ They are very swift in their proper depth of water, dive like a shot, and rise in a trice at fifty yards distance; so that weaker fishes cannot avoid their tyranny, except in shallow water. A person of the parish of Senan saw, not long since, a seal in pursuit of a mullet (that strong and swift fish:) the seal turned it to and fro in deep water, as a greyhound does a hare: the mullet at last found it had no way to escape, but by running into shoal-water: the seal pursued; and the former to get more surely out of danger, threw itself on its side, by which means it darted into shoaler water than it could have swam in with the depth of its paunch and fins, and so escaped.

“ The seal brings her young about the beginning of autumn; our fishermen have seen two sucking their dam.

at the same time, as she stood in the sea in a perpendicular position.

“ Their head in swimming is always above water, more so than that of a dog.

“ They sleep on rocks surrounded by the sea, or on the less accessible parts of our cliffs, left dry by the ebb of the tide; and if disturbed by any thing, take care to tumble over the rocks into the sea. They are extremely watchful, and never sleep long without moving; seldom longer than a minute; then raise their heads, and if they hear or see nothing more than ordinary, lie down again, and so on, raising their heads a little, and reclining them alternately in about a minute's time. Nature seems to have given them this precaution, as being unprovided with auricles, or external ears; and consequently not hearing very quick, nor for any great distance.”

THE GREAT SEAL.

THIS animal is called the great seal-calf by Mr. Buffon; it resembles the former, but grows to the length of twelve

twelve feet. There was one described in the Philosophical Transactions, which was seven feet and a half long, though so young as hardly to have any teeth: the full growth of the common seal is about six feet. This animal, which is considered as the largest of the seal family, inhabits the coast of Scotland, and the south of Greenland. The skin is very thick, and is used by the Greenlanders to cut thongs out of for their seal-fishery. This is perhaps the same with the great Kamtschatkan seal, weighing about eight hundred pounds, and called by the Russians, Lacktach.

THE HOODED-SEAL.

IT has a strong folded skin on the forehead, which it can, at pleasure, throw over its eyes and nose, to defend them from stones and sand in stormy weather. The hair of this animal is white, with an under-coat of thick black wool, which makes it appear of a fine grey. It inhabits the south of Greenland and Newfoundland; and in the last mentioned place is called the hooded seal. The hunters say they

cannot kill this animal till they remove the integument on the head.

There is a variety which inhabits Greenland, with rough bristly hair, intermixed like that of a hog, and of a pale brown colour. The natives make garments of its skin, turning the hairy side inwards.

THE HARP SEAL.

THIS animal has a pointed head, and a thick body, of a whitish grey colour, with two black crescents on the sides, the horns pointing towards each other : but it does not attain this mark till the fifth year, and, before that period, changes colour annually ; the Greenlanders distinguishing it by different names every year. It inhabits Greenland and Newfoundland, and is the most valuable kind : the skin is the best and the thickest, and it produces the most oil. It grows to the length of nine feet.

There is a variety of this species in the lake Baikal ; it is a large kind, with yellow hair, and a large chefnut-coloured mark on the hind-part of the back,

back, covering almost a third part of the body.

THE LITTLE SEAL.

THIS is the little sea-calf of Mr. Buffon, and has the four middle-teeth of the upper-jaw bifurcated, and two in the middle of the lower-jaw are trifurcated. It has only the rudiment of an ear: the hair is soft, smooth, and longer than in the common seal: the colour is dusky on the head and back, and brownish beneath. The webs of the feet extend considerably beyond the toes and nails, and the length of the animal is from two to three feet. It inhabits the sea near the island of Juan Fernandez, and the seal-hunters affirm that they often observe a small species of about two feet, or two feet and an half in length, on the coast of Newfoundland. Mr. Buffon was certainly imposed on, when he was informed that the specimen he saw in the French King's cabinet came from India; Dampier, and many modern voyagers to the East-Indies, having asserted that they never saw any seals there.

THE URSINE SEAL, OR THE SEA-BEAR.

THERE are three marine animals, called the sea-lion, the sea-bear, and the manati, which keep a particular situation, and seem divided between the north-east of Asia, and the north-west of America, in the narrow seas between these vast continents. From June to September they inhabit the islands that are scattered in the seas between Kamtschatka and America, in order to propagate and bring forth their young in full security. In September they quit their stations, greatly emaciated; some returning to the Asiatic, and others to the American shores; but, like the sea-otters, they are confined to those seas between lat. 50 and 56.

The ursine seal, or sea-bear, leads a most indolent life during the three months in summer. They are extremely fat when they arrive at the islands; but while they remain there they are hardly ever in motion, confining themselves for whole weeks to one particular spot, and sleeping a great part of the time: they

they eat nothing, and are totally inactive, except the employment the females have in suckling their young. They live together in families, each male having a great number of females, which he watches with the jealousy of an eastern monarch. Though they are assembled by thousands on the shores, each family is separated from the rest. The old male animals, which are destitute of females, or deserted by them, live apart, and are excessively splenetic, peevish, and quarrelsome. They are remarkably fierce, and so attached to their old haunts, that they would sooner die than be driven from them. They have a strong scent like that of the goat. If another approaches their station, they are roused from their indolence and immediately snap at it, and a combat naturally ensues. In the conflict they perhaps intrude upon the premises of another, which instantly excites his indignation, so that the discord sometimes becomes universal.

The other males are also easily offended: the principal cause of their disputes is when another attempts to seduce one of their mistresses, or a young female of the family: this insult

sult infallibly produces a combat, and the conqueror is immediately attended by the whole seraglio, who always desert the unhappy vanquished. Sometimes a quarrel arises from their interfering in the disputes of others; and their battles are generally terrible: the wounds they give and receive are very deep, and resemble the cuts of a sabre. At the conclusion of a battle, they usually plunge into the sea to wash away the blood.

The male is very fond of his young, and if any person endeavours to take away his cub, he stands on the defensive, while the female carries it away in her mouth; but if she should happen to drop it, the male immediately quits the enemy, chastises her, and beats her against the stones, till she is ready to expire: when she recovers, she presents herself in the most suppliant manner to the male, falls down submissively before him, and washes his feet with her tears, while he is stalking about in the most insulting manner: but, if the cub is carried off, he testifies the deepest affliction, and shews all the tokens of great concern. As the female usually brings but one at a time, and never more than

two, it is probably on that account that he is the more sensibly affected with his misfortune.

These animals are very swift in the water, and swim at the rate of seven miles an hour. When wounded, they will seize the boat, in which their enemies are, and carry it along with vast impetuosity; and sometimes they even sink it.

The male is considerably larger than the female. The bodies of each are of a conic form, being very thick before, and tapering to the tail. The length of a large one is about eight feet, and the greatest circumference about five: the weight about eight hundred pounds. The nose projects somewhat like that of a pug-dog, the nostrils are oval, the lips thick, and the whiskers long and white. When the mouth is closed, the teeth lock into each other: in the upper-jaw are four cutting-teeth, each having two prongs, and on each side is a small sharp canine tooth bending inwards, with another near it which is larger: the grinders, which resemble canine teeth, are six in number in each jaw: there are four cutting, and two canine teeth in the lower-jaw, but only
four

four grinders in each jaw; making in the whole thirty-six teeth. The tongue is slit, and the eyes large and prominent, which it can cover at pleasure with a fleshy membrane: the ears are small and sharp-pointed, hairy without, and smooth within. The length of the fore-legs is about two feet, on which are toes which are covered with a naked skin, so that externally they seem a shapeless mass, and have only the rudiments of nails to five latent toes: the hind legs, which are about twenty-two inches long, are fixed to the body quite behind, in some degree like those of seals, but the animal is capable of bringing them forward, and even uses them to scratch its head. These feet are about a foot broad, and are divided into five toes, each divided by a large web. The length of the tail is not above two inches.

The hair of these animals is long and rough, beneath which is a soft down of a bay colour: their general colour is black, but the hairs of the old ones are tipped with grey: the females are ash-coloured. The flesh of the old males is very nauseous, but that of the females resembles lamb, and the young

young ones, when roasted, are as delicate eating as sucking pigs.

THE SEA-LION.

THE male has an arched projecting snout, hanging five or six inches below the under-jaw; the eyes are large, and the whiskers long; the hair on the body is short, and of a dun-colour; that on the neck is a little longer: the feet which are short and dusky, have five toes upon each, furnished with nails; the hind-feet have the appearance of large fins. The length of a full grown male is about twenty feet, and the greatest circumference about fifteen. The female has a blunt nose, knotty at the top, and wide nostrils: the fore-legs are twenty inches long, and the toes are furnished with flat oblong nails: instead of legs, the hind parts are divided into two large forked fins, and it has no tail. The body of this animal is covered with short rust-coloured hair; and the length, from the nose to the fins, is about four yards, and the greatest circumference about two yards and an half.

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These animals inhabit the seas between Kamtschatka and America. They are seen in great numbers in June and July, which is their breeding season, on the islands which they resort to in order to suckle their young on shore. The male shews no great attachment to the young, but the female is excessively fond of them, and is upon those occasions remarkably fierce. One of lord Anson's sailors was killed by the enraged dam of a whelp which he had robbed her of *. In the evening both male and female swim a little way out to sea, the latter carrying the young on her back, which the male frequently pushes off, meaning, perhaps, by that means to teach it to swim.

Like the sea-bear, they arrive on the breeding islands very fat and full of blood. When these animals are in motion, they have the appearance of a large skin full of oil, from the tremulous movement of the blubber which is sometimes a foot thick, on which account the Spaniards call them wolves of oil. One of these animals has been known to yield a butt of oil, and they are

* Anson's Voy. 124.

so full of blood, that two hog'sheads have been filled with what has come from one animal. The flesh, though not excellent, is eatable. It was eaten by Lord Anson's people under the denomination of beef, to distinguish it from the flesh of seal, which they called lamb.

Though the old animals have a tremendous appearance, they are excessively timid, except at the breeding season. At other times they plunge into the water with great precipitation; or if awakened from their sleep by blows, or any loud noise, they are in the utmost terror and confusion, falling down and trembling in every part: but, when they perceive it is impossible for them to escape, they grow desperate, roar tremendously, and attack their enemy with uncommon fury. The Kamtschatkans either shoot them with poisoned arrows, or kill them in their sleep with lances. They make shoes of the skin, and sometimes cut into cords. The blubber and the flesh they esteem very palatable; but the Kamtschatkans make a jelly from the feet, which they think delicious.

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Like the former, these animals associate in families, but in smaller numbers: the males are equally jealous of their mistresses, and have frequently bloody battles upon their account. A sea-lion of superior courage has a greater number in his seraglio than the others. In the Kamtschatkan seas, they generally make choice of some insulated rocks for their station, where their roar is to be heard at the distance of two miles; the cry of the young resembling the bleating of sheep. These animals are of a heavy inactive disposition, fond of wallowing in miry places, and, like swine, lying one upon another, making a noise somewhat like the grunting of those animals, and sometimes snorting like horses in full vigour. As they are very inactive on land, a centinel is placed by each herd to prevent a surprize, who, at the appearance of danger, gives a certain signal to the rest. These animals abstain from food in the breeding season *, and, before that time is elapsed, become exceeding lean. At other times, they feed on seals, fish, and sea-otters.

* Hist. Kamtschatkan, 123.

THE MANATI.

THIS animal, in nature, very nearly approaches the whale. Like the whale, it brings forth in the water, and like the whale, suckles its young in that element. Like the whale, it has no voice, and, like that animal, has an horizontal broad tail, without even the rudiments of hind feet. Indeed what are called feet, are little more than fins, serving for swimming; they are never used to assist the animal in walking, or standing, for it never goes ashore, nor ever attempts to climb the rocks, like the seal and walrus.

In the head and body, the manati is shaped somewhat like the seal; the fore-legs or hands are also very much in the same manner, short and webbed, but having only four claws; these too are proportionably shorter than in the other animal, and placed nearer the head; consequently they are not adapted to assist its motions upon land. But in the hinder parts it differs greatly from all the animals of the seal kind; the tail being perfectly that of a fish, and extended like a fan, without even the

vestiges of those bones which form the legs and feet of others of the seal kind.

These animals are of an enormous size: Dampier asserts that some of them are twenty-eight feet long, and weigh eight thousand pounds *. The skin which is of a blackish colour, is very tough and hard, and full of inequalities like the bark of oak, on which are scattered a few hairs, like bristles, of about an inch long. In proportion to the animal, the eyes are exceeding small, not exceeding those of a sheep in size. It is destitute of external ears, having only two orifices which are so small as hardly to admit a quill. The tongue is pointed and very small. It has no teeth, instead of which it has two solid white bones, extending the whole length of both jaws, which serve instead of grinders. The lips are double, and near the junction of the two jaws, the mouth is full of white tubular bristles answering the same purpose as the laminae in whales, to hinder the food from running out with the water. The lips are also full of bristles, serving, instead of teeth, to cut the strong roots

* Dampier i. 35, 36.

of the sea-plants, which floating ashore point out the vicinity of these animals.

The female manati produces but one at a time, which she holds with her paws to her bosom, where it sticks close, and accompanies her wherever she goes. The manati can hardly be called amphibious, as it never entirely leaves the water, only raising its head out of the stream, to reach the grass on the sides of the rivers. It feeds entirely upon vegetables, and therefore never chooses to go far in the open sea, but frequents the edges of the shores, and chiefly the large rivers of south America, where it is often found above two thousand miles from the ocean. It is also found in the seas near Kamtschatka, where it feeds upon the weeds which are growing near the shore. At the bottom of some of the Indian bays, these animals are seen harmlessly grazing among turtles and other crustaceous fishes, neither offering nor fearing any outrage. In calm weather these animals, when unmolested, keep together in large companies near the mouths of rivers. In the time of flood, they come so close to land that a person may stroke them with his hand.

They live in small families, consisting of a male, a female, a half-grown young one, and a very small one; each family not being far distant from another. The females oblige their young to swim before them, while the other old ones surround, and guard them on every side. The affection between the male and female is very strong, for, if the latter should happen to be attacked, the former will defend her to the utmost, and, if she is killed, he attends her body to the shore, and, for several days after, continues to swim about the place at which she was landed. These animals bring forth in autumn, and are supposed to go with young about a year.

The manati has no voice nor cry, and makes no kind of noise except what proceeds from breathing. The internal parts of this animal resemble those of an horse, its intestines being longer than any other creature, the horse only excepted.

These animals are vastly voracious, and, when their hunger is appeased, they fall asleep on their backs. During their repast, they are so intent upon their food, that any person may go among them and make choice of which

he

he pleases. Peter Martyr informs us that one of these animals lived in a lake of Hispaniola for twenty-five years, which was so tame as to come to the edge of the shore on being called, and would even perform the part of a ferry, carrying several people on its back at once to the opposite shore. The back and sides of these animals are usually above water, and as their skin is filled with a species of louse peculiar to them, great numbers of gulls are continually perching on their backs, and picking out the insects.

They remain the whole year in the American and Kamtschatkan seas, but they are so very lean in winter that you may even number their ribs. They are usually taken by harpoons, and, after they are struck, it requires the united strength of thirty men to draw them on shore. Sometimes when they are transfixed, they will fasten their paws upon the rocks, and stick so close as to leave the skin behind them before they can be forced off. When one of these animals is struck, its companions swim to its assistance; some of which endeavour to overturn the boat by getting under it; others attempt to break the rope,

rope, by pressing it down; and others strike at the harpoon with their tails, with a view of forcing it out, in which they often succeed.

When exposed to the sun, the fat or blubber of the manati, which lies under the skin, has a most delicious smell, and taste, and is far superior to the fat of any other sea-animal: it has also this peculiar property, that the heat of the sun will not make it grow rancid, or injure it in the least. It tastes like the oil of sweet almonds, and, in all cases where butter is used, it is a most excellent substitute. Any quantity of it may be taken without the least injury, as it has no other effect than that of keeping the body open. The fat of the tail is of a harder consistence, and, when boiled, is more delicate than the former. The flesh is redder and coarser than beef, and may be kept a great while in the hottest weather, without putrifying. It requires a long time in boiling, and afterwards has somewhat the taste of beef. The fat of the young ones has the flavour of pork, and the lean resembles veal. Some are of opinion, that the flesh of this animal resembles that of a turtle, which

which is indeed extremely probable, since they are found in the same element, and live upon the same food. The turtle is a delicacy well known among us, and is highly prized by the voluptuaries of the city of London. When our luxuries are sufficiently heightened to introduce the manati, a single animal would be sufficient for the feast of a lord mayor.

THE SEA APE.

Mr. Stellar describes a very singular animal, which he saw on the coast of America *, which he calls a sea ape. Its head resembles that of a dog, its ears are short and erect, its eyes large, and it has a kind of beard on each lip. The length of its body is about five feet, and its form thick and round, but largest near the head, and tapering to the tail, which has two prongs. The body is covered with thick hair, which is grey on the back, and red on the belly; but our author says he could discover neither feet nor paws. It was extremely frolicsome, and diverted it-

* Hist. Kamtschatka, 136.

self with variety of monkey tricks; sometimes swimming on the one side of the ship, and sometimes on the other, observing it with great amazement. It frequently came so near the vessel that it might be touched with a pole; but, if any person moved, it would immediately retire. Sometimes it would raise itself so as to have a third part of its body out of the water, and continue erect for a considerable time; then, suddenly darting under the ship, appear in an instant on the other side, in the same attitude; and this it would repeat for thirty or forty times together. Sometimes it would bring up a sea plant, which it would wantonly toss about and catch again in its mouth, playing a number of fantastic tricks with it.

THE BELUGA.

THE beluga is another obscure animal of this class; it is found in the sea between Kamtschatka and Tartary; in that between Kamtschatka and America, and in the frozen sea near the mouth of the Jenesei. It measures from fifteen to twenty feet long, and three

or four feet round : in its feet and tail it agrees with the seal, but its teeth are like those of a cow. On the neck are two holes, from which water issues as from a spout. It has a small quantity of hair on its body, but so thinly scattered, that the skin, which is white, appears through it.

These animals live on fish, and assemble in large numbers. They carry their young upon their backs, and avoid shallow places ; seldom going up rivers or very near the shore.

THE BAT.

SOME naturalists have thought animals of the bat kind so much partaking of the nature of the bird and the beast, that they have been at a loss in which rank to place them ; but these doubts exist no longer : they are now universally allowed to take their place among quadrupeds ; to which they are evidently entitled by their hair, their teeth, and their bringing forth their young alive ; as well as by the rest of their habits and conformations. The bat has indeed been placed among birds by Linnæus, Gesner, and Aldrovandus, but they

they did not consider that it wanted every character of that order of animals, except the power of flying. This animal indeed, in some measure, presents the appearance of a bird, when it is seen with an aukward and struggling motion, supporting itself in the air at the dusk of the evening; but naturalists, who ought to watch its habitudes, and inspect its formation, are inexcusable for concurring in the mistake. It not only brings forth its young alive, as I have already mentioned, but it also suckles them: its mouth is furnished with teeth; its lungs are formed like those of quadrupeds; its intestines and its skeleton perfectly resemble them.

The species of bat which is most common in England, is about the size of a mouse, or nearly two inches and an half in length. The members, which are usually called wings, are, in reality, only the four interior toes of the forefeet, produced to a great length, and connected by a thin membrane, which also extends to the hind legs and the tail. The first toe is quite loose, serving as a heel when the animal walks, or as an hook, when it chooses to adhere to any thing. The hind feet are disen-

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gaged from the surrounding skin, and divided into five toes, furnished with pretty strong claws, somewhat resembling those of a mouse. The skin or membrane by which it flies is of a dusky colour: the body is covered with a short mouse-coloured fur, tinged with red. The eyes are very small, the ears short, and the extent of the wings nine inches.

This animal makes its first appearance in England early in summer, and begins its flight in the dusk of the evening. It usually haunts the sides of woods, glades, and shady walks; and frequently skims along the surface of water in pursuit of gnats and insects. These, however, are not its only food, for it will not refuse meat of any kind, wherever it can find it. The flight of the bat is a laborious irregular movement, and, when interrupted in its course, it finds it difficult to prepare for second elevation; so that if it happens to strike against any object, and falls to the ground, it seldom can escape. It never appears but in the most pleasant evenings, when its prey are generally abroad, and always flies in pursuit with its mouth open. At other times it con-

tinues in its retreat, which is generally the chink of a building in a ruinous state, or the hollow of a tree. Even in summer, this little animal sleeps the greatest part of its time, never venturing out by day-light, nor in rainy evenings. It is in quest of prey but a small part of the night, as it presently satisfies the demands of hunger, and returns again to its hole.

At the approach of winter, the bat prepares for its state of lifeless inactivity, and always prefers a place where it may be safe from interruption, to where it may be conveniently and warmly lodged. It retires into caves, buildings in a ruinous situation, the roofs of houses, or hollow trees, where it remains during the whole winter, in a state of torpid inactivity; suspended by the hind feet, and closely wrapped up in the membranes of the fore feet, regardless of the external damps that surround it. This is the only animal that will venture to remain in frightful subterranean abodes, where it continues in a state of torpidity, unaffected by every change of weather.

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Those, however, which are not sufficiently provident to procure themselves a deep retreat, where the cold and heat do not essentially vary, are sometimes exposed to great inconveniencies; for, in the midst of winter, the weather is sometimes so extremely mild as to warm them prematurely into life, and induce them to quit their holes in pursuit of food, at a time when nature has not provided a supply. These unfortunate adventurers have seldom strength to return; but, having exhausted themselves in a vain pursuit, after insects which are not to be found at that season of the year, are destroyed by the owl, or some other animal of prey.

This creature brings forth in summer, and generally produces from two to five at a time. We are assured, by Linnaeus, that the female prepares no nest for her young. She is satisfied with the first hole she meets, where, sticking herself up by her hooks against the sides of her apartment, she suffers her young to hang at the nipple, and continue thus for the first or second day. But, when she becomes very hungry, and finds it absolutely necessary

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cessary to go abroad, she sticks her little ones against the wall, to which they firmly adhere, and patiently wait till her return.

From what has been said, it is very apparent that this animal is closely allied to the quadruped race, and its similitude to that of birds is infinitely less striking. Nature, indeed, has furnished birds with very strong pectoral muscles, to move the wings and direct their flight; so has it also furnished this animal: but the great labour required in flying soon fatigues it, and, though birds can continue whole days upon the wing, the bat becomes weary in less than an hour, and returns to enjoy the darkness of its retreat.

This bat, so common in great Britain, may be considered as an harmless inoffensive animal; though it sometimes steals into a larder, and like a mouse, commits its petty thefts upon the fattest parts of bacon. But this does not often happen, it being principally employed in pursuing insects that are much more noxious to us than this animal can possibly be.

THE LONG-EARED-BAT.

THE ears of this animal are thin, almost pellucid, and above an inch long; The body and tail are only one inch three quarters long. This animal, and all other bats, except the ternate, and the horse-shoe, have a smaller, or internal ear, serving as a valve to the greater, when the animal is asleep.

THE GREAT BAT OF MADAGASCAR.

THE bats which are seen in Great-Britain, are inoffensive and minute; incapable, from their size, of injuring mankind, and not sufficiently numerous to incommode them; but in the East and West Indies, there is a larger race of bats, that are truly formidable: one of them is a dangerous enemy; but, when they unite in flocks, they become dreadful. Des Marchais says, that if the inhabitants of the African coast, were to eat animals of the bat kind, as they do in the East Indies, they would never want a supply of provisions. They

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are so numerous, that, when they fly, they obscure the setting sun: early in the morning, they are seen sticking upon the tops of trees, and clinging to each other like bees when they swarm. The Europeans often amuse themselves with shooting them, and the negroes are expert in killing them; but they regard the bat with horror, and would not eat it if they were starving.

The largest that we have any certain account of, is the great bat of Madagascar, called by Mr. Buffon the *roufsette*. This animal is about a foot longer from the tip of the nose to the insertion of the tail; and its extent from the tip of one wing to the tip of the other, is about four feet. It has large canine teeth; four cutting teeth above, and four below: the nose is black and sharp, and the ears large and naked; the talons are very crooked, strong, and compressed sideways. It has no tail. These animals vary in colour, some being entirely of a reddish brown, others of a brighter red, and others dusky. It resembles the common bat in the form of its wings, in its manner of flying, and in its internal conformation. This formidable creature is found

found in Guinea, Madagascar, and all the islands from thence to the remotest in the Indian ocean. When they repose, they stick themselves on the tops of the tallest trees, and hang with their heads downward; but, when they are in motion, they sometimes settle upon animals, and even upon man himself. They devour indiscriminately fruits, flesh, and insects, and are so extremely fond of the juice of the palm-tree, that they will intoxicate themselves with it till they drop to the ground. At night they are heard in the forests at more than two miles distance, with a most horrible din; but they usually begin to retire at the approach of day. Nothing is safe from the depredations of these noxious animals; they destroy fowls and domestic animals, unless they are carefully secured, and frequently fasten upon the inhabitants themselves, attacking them in the face, and inflicting very terrible wounds. It is very probable, as Mr. Buffon remarks, that the ancients have taken their idea of harpies from these fierce and voracious creatures, as they both seem to concur in many parts of the description, being
equally

equally cruel, deformed, greedy, and uncleanly.

The Indians eat these animals, and say the flesh is extremely good, especially at certain times of the year when they are very fat. The French, who inhabit the Isle of Bourbon, boil them in their bouillon to give it a relish* : but the negroes hold them in abhorrence. Many are seen much larger than that abovementioned. Beckman measured one that was five feet four inches from tip to tip of the wing; and Dampier saw another which spread farther than he could reach with extended arms. Their bodies are from the size of a pullet to that of a dove : their cry is dreadful, their smell rank, they resist fiercely when attacked, and their bite is terrible.

Linnaeus gives this species the title of vampyre, supposing it to be the kind which draws blood from people in their sleep; but Mr. Buffon is of a contrary opinion, ascribing that faculty to a species found only in South America. Mr. Pennant differs from both those naturalists, and very justly observes,

* Voyage to Borneo, 39.

that "there is reason to imagine that this thirst after blood is not confined to the bats of one continent, nor to one species; for Bontius and Nieuhoff inform us, that they of Java seldom fail attacking those who lie with their feet uncovered, whenever they get access; and Gumilla, after mentioning a greater and lesser species, found on the banks of the Orenoque, declares them to be equally greedy after human blood *".

Persons who have been thus attacked, have sometimes almost passed from a sound sleep into eternity. The bat is so dexterous a bleeder as to insinuate its sharp-pointed tongue into a vein unperceived, and to suck the blood till it is satiated; at the same time fanning with its wings, and agitating the air, which, in that hot climate, lulls the sufferer into a still sounder sleep. It is therefore dangerous to repose in the open air, or to leave open any entrance to these noxious animals. Nor do they always confine themselves to human blood; for Mr. Condamine, in his voyage to South America, informs us that in certain parts of America, they

* Pennant's Synopsis, 361.

have

have destroyed all the great cattle which were introduced there by the missionaries.

THE VAMPYRE.

THIS animal, though less formidable, is more mischievous than the former. It is furnished with a horn, and its ears are extremely broad, long, and upright. The hair on the body is ash-coloured and pretty long: the membrane extends from one hind-leg to the other: it has no tail; but from the rump extend three tendons, terminating at the edge of the membrane. It inhabits South-America, lives in the palm-trees, and grows very fat.

This is the bat which Mr. Buffon supposes to be the principal blood-sucker. It is agreed by all travellers that this bat is possessed of a faculty of drawing the blood from persons sleeping, but still a very strong difficulty remains to be accounted for; the manner in which they inflict the wound. Ulloa supposes it to be done by a single tooth; but that is utterly impossible, as the animal cannot infix one tooth, without all the rest accompany its motions,

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the teeth of the bat kind being pretty even, and the mouth small. Mr. Buffon therefore supposes the wound to be inflicted by the tongue ; but others imagine that the animal is endowed with a strong power of suction, and that, without inflicting any wound, by continuing to draw, it so greatly enlarges the pores of the skin, that the blood at length passes ; and, in confirmation of this opinion, we are told it cannot injure any animal that has a thick skin.

THE JAVELIN BAT.

IT is of the size of a common bat, has large pointed ears, and an erect membrane at the end of the nose in the form of an ancient javelin, having two upright processes on each side. It has no tail, its fur is ash-coloured, and it inhabits the warm parts of America.

THE LEAF BAT.

THIS is the *feuille* of Mr. Buffon ; it has small round ears, and a membrane on the nose of the form of an oval leaf. It has a web between the hind-legs, but

but no tail. The fur is of a mouse-colour, tinged with red. This is also about the size of a common bat. It inhabits Jamaica, Surinam, and Senegal. In Jamaica it lives in caves in the woods. It feeds on the prickly pear.

THE CORDATED BAT.

THE colour of the face of this animal is a light red, and that of the body still paler. Its ears are very broad and long, and, at the end of the nose, it has a membrane in the shape of a heart. It has a web between the hind-legs but no tail. It inhabits Ceylon, and the isle of Ternate, one of the Moluccas.

THE PERUVIAN BAT.

THE body of this bat is about the size of a pretty large rat; the colour of the fur is an iron grey; and the extent of the wings two feet five inches. It has a head like a pug-dog, large straight-pointed ears; and, in each jaw, two canine teeth, and two small cutting teeth. The tail is inclosed in the

the membrane, which joins to each hind-leg, and is also supported by two long cartilaginous ligaments involved in the membrane.

There is a variety with a large head and hanging lips, like the chops of a mastiff. This differs from the former in size, being less; but agrees in all other respects. It inhabits Peru and the Mosquita shore.

THE BULL-DOG BAT.

THE length of the body of this animal is a little more than two inches, and the extent of the wings nine inches and an half. It has broad round ears, the edges touching each other in front; the nose is thick, and the lips hang down: the upper part of the body is of a deep ash-colour, the lower-part paler, and the tail long; the five last joints of which are disengaged from the skin or membrane. It inhabits the West-Indies.

THE SENEGAL BAT.

THE length of this animal, from the nose to the rump, is about four
M inches,

inches, and the extent of the wings twenty-one inches. It has a pointed nose, and a long head, and the ears are short and pointed: the head and body are of a tawny brown, mixed with ashy-colour; the belly is somewhat paler. The two last joints of the tail extend beyond the membrane. It is a native of Senegal.

THE BEARDED BAT.

THIS is a small species, with hair on the forehead, and very long hair under the chin: the nostrils are open for a great way up the nose; the ears are long and narrow. The upper part of the head and body are of a reddish brown; the lower parts of a dirty white, tinged with yellow. The tail is included in the membrane. It inhabits North-America.

There is another species which inhabits North-America, that is ten inches and an half from the nose to the tail, and the tail a little more than one inch; the extent of its wings is ten inches and an half,

THE STRIPED BAT.

THIS is an inhabitant of Ceylon; it has a small short nose, and the ears are broad, short, and pointing forward: the upper part of the body is of a clear reddish brown, and the lower part whitish. The wings are striped with black, and sometimes with tawny and brown. The length of this animal, from the nose to the insertion of the tail, is about two inches.

THE HORSE-SHOE BAT.

THERE is a greater and lesser variety of this animal; the greater is about three inches and a half long, from the nose to the tip of the tail, and the extent of its wings about fourteen inches. It has a membrane at the end of the nose, in the form of a horse-shoe; the ears are large, inclining backward, broad at the base, and sharp-pointed. It is destitute of the little or internal ear. The upper-part of the body is of a deep ash-colour, and the lower part whitish. The tail of this creature is inclosed in the membrane.

It inhabits Burgundy, in France, and has lately been discovered in some parts of Kent.

THE NOCTULE.

THE length of this bat is almost three inches, the tail almost two, and the extent of its wings thirteen; the ears are small and rounded, and the hair of a reddish ash-colour. It inhabits Great-Britain and France, and never skims near the ground, but flies high in pursuit of prey.

Mr. Buffon also mentions the serotine, the pipistrelle, and the barbastelle, which are all inhabitants of France, and have nothing peculiarly interesting, except that the pipistrelle is the least of the bat kind; not being an inch and a quarter long, and the extent of its wings not exceeding six inches and an half.

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